

What Is Claimed Is:

- sub B1>
1. A method of treating a waste material containing gelatin comprising:
- 5 a) combining the waste material and a solvent for the gelatin to form a liquid containing gelatin;
- b) separating the liquid into a solvent based layer and a non-solvent based layer; and
- 10 c) removing residual oils and/or particulates from the solvent based layer to form a second liquid containing gelatin having a higher purity than the first liquid.
2. The method of claim 1 further comprising treating the non-solvent based layer to remove and recover individual oils therefrom.
3. The method of claim 2 comprising distilling the non-solvent based layer.
4. The method of claim 3 wherein the step of distilling the non-solvent based layer comprises fractional distillation or short path distillation.
- 15 5. The method of claim 2 wherein the step of treating the non-solvent based layer comprises subjecting the non-solvent based layer to reverse osmosis.

~~6. The method of claim 1 wherein the step of removing residual oils and/or particulates from the solvent based layer comprises subjecting the solvent based layer to hot filtration.~~

Sub B2
5 ~~7. The method of claim 6 wherein hot filtration is carried out at a temperature of from about 30 to 70°C.~~

8. The method of claim 7 wherein the solvent based layer is diluted at a dilution volume of up to 5 volumes of said solvent.

Sub B3
10 ~~9. The method of claim 6 wherein the hot filtration step is selected from the group consisting of liquid:liquid centrifugation, submicro/microfiltration, liquid:liquid coalescence, absorbence and the use of filter aids.~~

~~10. The method of claim 9 comprising treating the solvent based layer with a tangential flow filter.~~

11. The method of claim 6 comprising removing the particulates and then removing the residual oils.

12. The method of claim ~~11~~ comprising removing the residual oils at a temperature of from about 30 to 70°C and a dilution volume of up to 5 volumes using a liquid:liquid coalescer.

Sub B45
5 13. The method of claim 6 comprising removing the residual oils and particulates to form a filtrate and recycling the filtrate.

14. The method of claim 6 comprising removing the residual oils and particulates to form a filtrate and treating the filtrate to remove at least some of the solvent.

10 15. The method of claim 14 wherein the step of treating the filtrate comprises subjecting the filtrate to a process selected from the group consisting of vacuum distillation, diafiltration and short path distillation.

16. The method of claim 15 comprising treating the filtrate by short path distillation at an evaporator temperature of from about 50 to 120°C.

15 17. The method of claim 16 comprising treating the filtrate by short path distillation at a pressure of from about 20 to 30 in. Hg.

Sub C4
B5 → 18. The method of claim 9 wherein the step of removing oils and particulates from the solvent based layer comprises subjecting the solvent based layer to centrifugation to form a third liquid containing gelatin.

Sub C4
5 19. The method of claim 1 further comprising separating the particulates from the oils and forwarding the oils to the non-solvent based layer.

20. The method of claim 18 further comprising removing at least a portion of the solvent from the third liquid to increase the concentration of gelatin in the third liquid.

21. The method of claim 20 further comprising removing any dyes from the third liquid.

10 22. The method of claim 1 wherein the waste material contains a softening agent, said softening agent being separated into the solvent based layer.

Sub C5
23. The method of claim 22 wherein the softening agent is selected from polyols.

24. The method of claim 23 wherein the polyol is glycerin.

25. The method of claim 20 wherein the third liquid contains a softening agent, said method further comprising subjecting the third liquid to short path distillation to form a fourth liquid containing gelatin, softening agent and dyes if present.

26. The method of claim 21 wherein the third liquid contains a softening agent, said method further comprising subjecting the third liquid to ultrafiltration to remove the softening agent and any dyes therefrom.

27. The method of claim 1 wherein the solvent is water.

Add A7

Add B6

Add B1